

**Electronic Commerce
FY 98 Assessment
and
FY 99/00 Implementation Plan**



National Aeronautics and Space Administration
Washington, DC

Executive Summary

Electronic Commerce was introduced to Federal procurement in late 1993 with the release of the President's Memorandum on Electronic Commerce. Since then, agencies and departments have worked, with varying success, to meet the goals of the Federal initiative that focused on FACNET (for the Federal Acquisition Computer Network) and limited regulatory incentives. Recent legislation has expanded the EC definition to include a variety of technologies, including the Internet, as well as broaden the affected business process beyond procurement.

In March 1998, the Electronic Processes Initiatives Committee of the President's Management Council responded to this legislation with their report entitled "Electronic Commerce for Buyers and Sellers – A Strategic Plan for Electronic Federal Purchasing and Payment". As a follow-on to that report, the Office of Management and Budget (OMB) Memorandum M-99-02 of November 25, 1998 requested Executive departments and selected agencies to submit a two-part report identifying:

1. The activities they have undertaken in FY 98 to use electronic commerce (EC) in their purchasing and payment processes (**FY 98 EC Assessment**), and ;
2. The actions they are undertaking or plan to take during FY 99 and FY 00 to implement the Federal government's strategic plan for EC purchasing and payment (**FY 99/00 EC Implementation Plan**).

NASA's assessment and implementation plans provide clear evidence of our ongoing and very successful EC programs. Our tool set approach -- solutions designed to publicize business opportunities to a broad vendor audience at an effective cost -- fully support the revised federal EC strategy of modular development and deployment. For example, NASA's Acquisition Internet Service (NAIS) is firmly established as the leading Federal procurement presence on the Internet.

Within NASA, EC is spreading rapidly beyond the procurement offices. The Integrated Financial Management Project, our "end-to-end" reengineering initiative, is providing the backbone that ties together the business data that flows through the Agency as we fulfill our customers' requirements. Our philosophy will continue to be one that "stays two steps back" of the commercial market's lead -- adopting EC processes and related tools as they prove their potential in an integrated business environment.

FY 98 EC Assessment

NASA's FY 98 EC Assessment includes:

A. Highlights of activities that support the building blocks identified in the Government-wide EC Strategic Plan of March 1998, including;

- Catalog Interoperability Pilot
- Consolidated Contracting Initiative
- Purchase Card Program
- Public Key Infrastructure
- Electronic Posting Pilot
- Integrated Financial Management Project
- Payment Processes and Electronic Funds Transfer
- Payment Advice Internet Delivery

B. Additional Efforts

- NASA Acquisition Internet Service activities
- Just-In-Time Office Depot Initiative
- "SEWP"

C. Interagency Groups that NASA contributes to including;

- Interagency Acquisition Internet Council
- Federal EC Coordinators Group
- Interagency Electronic Grants Committee
- Federal Public Key Infrastructure Steering Committee
- Financial Implementation Team for Electronic Commerce
- Defense Joint Electronic Commerce Program
- CFO Council Subcommittee on Grants Management, Cash Drawdown Group
- EFT 99 Interagency Policy Workgroup
- Prompt Pay Interagency Workgroup

D. Vendor data collection

A. Efforts Related To Government-wide Building Blocks

1. **Electronic Catalogs – “expanding and enhancing electronic catalog purchasing ... and migrating to commercial catalog solutions”**

a. Catalog Interoperability Pilot

With the rapid growth of the Internet and supporting Web-based applications many agencies have moved their traditional, paper-based schedules and contracts to electronic catalogs. However, this represents significant and repetitive overlapping costs when the same information from the same vendors is collected, negotiated, and offered in a myriad of electronic catalogs.

NASA, through participation of Headquarters (HQ) and the Goddard Space Flight Center (GSFC), co-chaired Federal participation in the CommerceNet Catalog Interoperability Pilot (pilot). The primary goal of the pilot was to demonstrate that existing on-line catalogs from widely different agencies could be brought to the desktop of buyers who were likely unaware the catalogs existed for multi-agency use. Users at participating agencies were able to conduct “one-stop” searches with end-to-end security, locate items in catalogs at other agencies, and ultimately access products from any participating vendor sites.

The pilot demonstrated how an interoperable catalog system operating over secure public networks could potentially reduce the enormous costs and inefficiencies inherent in operating multiple stand-alone electronic catalogs within the Federal government. The pilot was successful in demonstrating both catalog interoperability and integration of user authentication.

Phase II of the pilot is scheduled to begin during FY 99 and is addressed in the EC Implementation Plan.

b. Catalog Purchasing – Consolidated Contracting Initiative

NASA initiated a Consolidated Contracting Initiative (CCI) in November 1996 to enhance catalog purchasing and the availability of existing contracts across NASA procurement offices. The effort emphasizes developing, using, and sharing contracts, among NASA’s Centers and with other Federal agencies. CCI reduces time spent on acquisition-related tasks, minimizes contract duplication, reduces closeout backlogs, and improves contract cooperation with other Federal agencies.

A key component of CCI’s structure is the use of the Internet to assure fast, accurate, and low cost information about shared contract opportunities. NASA provides links to it’s own inventory of current and planned contracts, as well as to

governmentwide agency contracts (GWACs) that are Federal Acquisition Regulation-compliant and have a likelihood of meeting NASA's mission needs. These include the General Service Administration's popular "Advantage" program, the Department of Transportation's "Information Technology Omnibus Procurement (ITOP)" program, and the Department of Energy's "Energy Savings Performance Contract (ESPC)" initiative.

CCI permits visitors to browse information on a web site and to contact technical and procurement points of contact by e-mail for each NASA listing. A user identification number and password are required to change a listing and date and time activated "clocks" notify personnel to assure CCI listings are kept current, accurate, and complete.

NASA's CCI database includes about 100 contracts available for use by NASA, other Federal agencies, and NASA prime contractors (when approved by a NASA contracting officer). Approximately forty of these contracts are with small, disadvantaged, and woman-owned businesses.

The migration has been substantial with the value of orders placed nearly doubling from FY 96 to FY 98. NASA has substantially increased the use of existing contracts.

	FY 96	FY 97	FY 98
Contracts in shared database	15	102	100
Orders placed against NASA shared contracts	700	1200	1000
Orders placed by NASA against other shared contracts	341	502	436
Value of orders placed by NASA against other contracts	\$39M	\$64M	\$92M
Value of orders placed against NASA contracts	\$70M	\$126M	\$128M

Note: CCI began in November 1996 with a phase-in period of thirty days. Data for FY 96 is adjusted to reflect performance for three quarters of the fiscal year.

CCI results are encouraging. Significant consolidation and electronic tools have reduced processing cost, program management functions, and related operations.

2. Payment Utilities – “increasing and improving use of electronic payment utilities through purchase card implementation ...”

NASA's Purchase Card Program

NASA is participating in a commercial card program authorized under a GSA

Federal Supply Schedule contract. The purchase card is used primarily by non-procurement personnel to acquire non-complex goods and services under \$2,500 (micropurchase limit). Non-procurement personnel acquire goods through these streamlined procedures, which do not have significant paperwork or regulatory burdens. The card program makes more efficient use of the Government's resources by focusing procurement expertise on complex procurements of goods and services. Under the new task order with NationsBank, NASA is moving toward a one-card solution by combining Fleet, Purchase, and Travel transactions to further streamline our business processes.

NASA Headquarters appointed the Langley Research Center (LaRC) as the functional lead Center for the NASA Purchase Card Program. LaRC has previously developed an electronic purchase card system to record, manage, and verify charges for purchases. A full reporting capability has been added to support a variety of functional and audit needs. LaRC is presently refining the electronic invoice capability between its purchase card system and its new GSA SmartPay Card contractor. In addition, LaRC's purchase card system has been selected to be the Agency-wide interface with the Integrated Financial Management System. Completion of the interface is scheduled for June 2000.

NASA's substantial increase in purchase card purchases (see table below) has emphasized use of commercial sources and catalog solutions. Such catalog solutions are a combination of commercially available and add-ons to existing contract vehicles.

NASA has continued to increase its utilization of purchase card purchases and related electronic payment process. Data below indicates an increase from FY 96 to FY 98 of 80% in dollar value. All data indicate increasing participation across the Agency.

	FY 96	FY 97	FY 98	FY 96 to FY 98 Increase
Credit card holders	2,098	2,673	3,096	47%
Transactions	59,036	90,094	113,650	92%
Dollar value	\$36.6M	\$55.8M	\$66.0M	80%

3. ID and Authentication – “migrating to standard commercial services for electronic identification and authentication ...”

As a key step towards migrating to standard commercial services for electronic identification and authentication of buyers and sellers, NASA has committed to the implementation of a standard Agency-wide Public Key Infrastructure (PKI) and has purchased PKI digital certificates for every NASA civil servant. The PKI products that NASA will implement are provided by a leading commercial vendor, consistent with the EC Strategic Plan policy principle, “Whenever possible and

cost effective, agencies should rely on commercial products, services and practices". PKI will provide a significant new layer of Information Technology security to protect NASA's systems and data from an ever-increasing variety and number of external and internal threats. An Agency-wide PKI will allow NASA to better integrate its internal business processes and to present a consistent authentication mechanism to external organizations.

FY 98 activities that led to the PKI decision included a successful Electronic Grants Project that piloted the use of a PKI for the electronic processing of grants between NASA and its grantees. NASA also conducted a Secure Messaging Pilot that verified the value of a PKI for the secure exchange of electronic mail and electronic mail attachments within the Agency. In order to ensure that NASA is proceeding in a direction that will allow us to conduct business in an interoperable manner with other parts of the Federal Government and with our industry partners, NASA also participated in the Federal PKI Steering Committee.

Initial applications for the NASA Agency-wide PKI include the Integrated Financial Management System (IFMS), the High Speed Research Program, electronic grants, secure messaging, and encryption of workstation local data. IFMS has firm requirements for digital signatures for the Time & Attendance and Travel functions, and is investigating how best to use digital signatures in its procurement function.

4. Contract Formation/Administration – “making contract formation and administration easier and more effective for buyers and sellers ...”

Electronic Posting System (EPS) Pilot

During FY 98, several agencies conducted an EPS pilot. NASA worked with GSA and the other primary pilot agencies, to build the pilot website. The EPS software used in the pilot evolved from software developed by NASA as part of the NASA Acquisition Internet Service (NAIS). The goal of EPS pilot was to prove that agencies could post business opportunities in a form that allows convenient, low cost, universal access through a single, government-wide point of entry. The EPS allows buyers to conveniently publicize opportunities and vendors to get this information on a government-wide basis through one access point.

Phase I of the pilot concluded in December 1998. As of mid-February 1999, over 2500 opportunities from nearly 2000 registered government buyers had been posted and over 6200 vendors had signed up for electronic notification of posted opportunities.

NASA's business opportunities and related procurement documents, which have been published on the NAIS and CBDNet, were added to the EPS pilot during

October 1998. Since then, all NASA competitive business opportunities over \$25,000 in estimated value, are published to the government-wide EPS site.

5. Contract Writing Systems – “using contract writing systems ... to automate buying related business functions”

During FY 98, NASA’s Integrated Financial Management Project continued development of a procurement module that will ultimately integrate with the Agency-wide core financial and related business systems. A Procurement Process Team has worked with the system contractor to refine test scripts to ensure delivered software meshes with previously reengineered business processes. The procurement module automates the entire process, from the generation of a procurement request on through to close-out. The module includes an integrated document generation system that will build FAR-compliant solicitations and contracts. The procurement module will also allow users to track the entire procurement process on-line and access real-time status information.

Members of the NASA Acquisition Internet Service team are working closely with this project to ensure efficient integration with supporting systems such as the Electronic Posting System. This team also began a gap analysis to examine any systems shortfalls resulting from incomplete or unattainable contract requirements. Where necessary, the team will propose possible add-on functionality to effectively support delivered systems and the NASA buyers.

6. Federal System Interfaces – “using standard interfaces between agency systems and commercial systems, including for accounting and reporting ...”

a. Integrated Financial Management Project

In 1995, NASA initiated the Integrated Financial Management Project (IFMP) with a goal to establish a standard integrated financial management system (IFMS) for the Agency that complies with the federal requirements as specified by the Joint Financial Management Improvement Project (JFMIP).

Currently, NASA’s financial management systems structure is provided through a series of Agencywide and Center-unique automated systems. These systems support budget, financial, and procurement functions. Each NASA Center has a Center-specific accounting system, which, in some cases, is integrated with Center budget systems. These systems are augmented by Agencywide systems in the area of Personnel, Procurement, Supply and Inventory. NASA determined that to achieve a standard, integrated financial management systems structure, the Agency must initiate an activity that will result in a standard set of Agency business processes and systems. The system must provide a financial

management core as well as integrated budget, procurement, time and attendance, travel, and executive information modules that will meet the needs of functional and end-users, and all levels of decision makers. NASA is acquiring commercial off-the-shelf software packages that will meet these objectives.

The project has established two major phases:

Phase I processes are core financial, budget formulation, travel, time and attendance, procurement, and an executive information system

Phase II processes are asset management, human resources management, and grants management.

The Integrated Financial Management System (IFMS) contract was awarded in September 1997. Since then, the NASA Center and Project staffs have been Working with the contractor on finalizing plans and configuring the system. The following milestones were accomplished in FY 98:

- December 1997 - Final reengineering and gap analyses completed
- August 1998 - Early use of budget module prior to full system acceptance

NASA will conduct independent tests for several months prior to deployment of the system at the first Centers in FY 99. All Phase I systems are expected to be deployed by late FY 00. The new Asset Management system is scheduled for FY 01 deployment followed by the remaining Phase II systems.

FY 99 and FY 00 activity is addressed in the EC Implementation Plan.

b. IFM Payment Processes

The NASA Integrated Financial Management System (IFMS), delivered under IFMP, will feature two payment-related processes that were under design and development in FY 98. While these processes do not constitute separate initiatives in themselves, their use of electronic technology to simplify procedures and eliminate enormous workloads, are notable as FY 98 EC initiatives:

- I. Electronic invoicing will allow outside vendors to electronically submit invoices directly to NASA for payment. This will eliminate the uncertainty and time delay associated with sending hard copy invoices through the mail systems. This process will result in a faster, more accurate, and timely payment to the vendor. All processes, between transmission of invoice and deposit of the resulting payment into the vendor's bank account will be done electronically.

2. All payment processing Centers will be making Corporate Trade Exchange (CTX) payments. Currently only one Center is doing so. CTX is a corporate ACH payment format with up to 9,999 eighty character addenda records that:
 - (a) allows an Agency to consolidate multiple invoices due on the same date to a single vendor into one payment, rather than individual payments for each invoice.
 - (b) allows the consolidated payment and the remittance information about each individual invoice to flow together through the existing EFT network.
 - (c) structures the remittance information according to Electronic Data Interchange (EDI) standards, which facilitates the vendor's ability to process the information directly into their accounting system.

c. Electronic Funds Transfer (EFT)

NASA continued the agencywide effort to increase the level of payments to vendors and contractors via EFT. This method allows for payments by the U.S. Treasury through a nationwide system of banks and financial institutions that in turn provides for the electronic distribution and settlement of funds. This long-term initiative took on an increased urgency with the passage of the Debt Collection Improvement Act of 1996. Generally, all payments made after January 1, 1999 should be made by EFT. NASA's recent progress for this ongoing effort is shown below:

YEAR	TOTAL PAYMENTS	CHECK PAYMENTS	EFT PAYMENTS	% EFT
1997	174,235	36,464	137,771	79%
1998	186,789	20,646	166,143	89%

d. Direct Deposit Electronic Funds Transfer System

In the first quarter of FY 98, the Goddard Space Flight Center implemented a Direct Deposit Electronic Funds Transfer System (DDEFT). After establishing an automated vendor information file containing electronic funds transfer data for each vendor/contractor, this system matches invoices received to the appropriate vendor record and establishes a payment due file two business days prior to the actual due date. All cleared transactions establish an Automated Clearing House (ACH) Report for subsequent review and transmission to Treasury for EFT payment.

e. Payment Advice Internet Delivery

The Johnson Space Center (JSC) and Treasury cooperated in a pilot project, known as the Payment Advice Internet Delivery (m), to provide vendors/contractors with up to date payment information. Previously, many banks were not providing the payment addendum information to the vendors/contractors or, in some cases, were charging the vendors an additional fee for the data. Matching of invoices to the EFT payments, without the addendum data, was very time consuming and in cases of a single payment covering multiple invoices, was extremely difficult. The project began in the summer of 1997 (FY 97) and was completed in early 1998 (FY 98). A survey of the project participants (Treasury, JSC, and Recipients) indicated the project to be very successful and a tremendous simplification of work for all parties. All NASA Centers have been instructed to implement the PAID system as soon as possible.

The JSC also participated in a second project with Treasury (Birmingham Office). As a result of the Taxpayer Relief Act of 1997, all Centers had to provide Forms 1099 to all vendors/contractors that were paid more than \$600 for their services. For tax year 1998, JSC worked closely with the Birmingham Regional Office. JSC provided 1998 tax information for each recipient to Birmingham, and that office processed the information onto the Forms 1099, mailed them to the recipients, and transmitted electronically to the Internal Revenue Service (IRS). This service benefited the JSC tremendously and saved the Center from incurring hundreds of staff-hours to create the Forms 1099 and file with the IRS.

These processes are to be tested and available for implementation in conjunction with the rollout of the IFMS in the summer of 1999.

B. Additional Efforts

The NASA Acquisition Internet Service Team continues to deliver outstanding results in procurement streamlining. Additionally, two Center initiatives are discussed that are indicative of significant savings that can be achieved for the Agency, and in one case, across the federal government.

1. NASA Acquisition Internet Service

The NASA Acquisition Internet Service, or NAIS, continues to shatter the procurement paper paradigm and has revolutionized the way NASA and other agencies pursue business process automation and streamlining. The NASA team established NAIS as an Internet-based service offering direct electronic access to contracting opportunities. It provides immediate, around-the-clock, access to procurement notices, solicitations, and a host of other related information from any NASA Center. Prospective offerors can obtain time-sensitive acquisition

information. As a result, procurement lead-times are reduced and cost savings are realized for NASA and industry. The service greatly increases competition to include otherwise unknown suppliers and increases NASA's exposure to small businesses. NASA currently provides on-line access to all competitive NASA business opportunities over \$25,000 and many below \$25,000, totaling several hundred actions annually.

During FY 98, the NAIS team continued several significant Internet commerce initiatives, including:

a. Forms-Based Pilot

The NAIS team recently completed a successful, six-month Forms-Based Pilot. Its objective was to demonstrate the ability to receive quotes electronically, using existing desktop and commercial-off-the-shelf (COTs) software. The two COTs software packages were "Informed" for forms and "Entrust" for digital signature/security--both Agency standards. The Pilot's focus was commercial item buys, from \$25,000 to \$100,000, that utilized the SF 1449. After completing internal testing, the Pilot moved to actual procurements and the real vendor community. Vendors were able to download the Agency-provided software and other necessary tools from the NASA Business Opportunities Page and complete and submit electronic quotes to the NASA buyers. Seven actual procurements were selected for the Pilot, and ultimately five competitive awards were made. Two of these awards were to vendors that were previously unknown sources. There were minimal user problems and their resolution helped to improve the process. The vendor community, primarily small businesses, gave supportive feedback. Based upon demonstrated success, the NAIS team has endorsed Pilot expansion to the next level--demonstrate the ability to perform electronic proposal receipt/award of large procurements.

b. Request for Quote Pilot

During FY 98, the NAIS team completed several milestones in the development of the Internet-based Request for Quote System (RFQS). NASA's pilot system is a bi-directional exchange with information moving from NASA to vendors and from the vendors to NASA. The system enables solicitations to be posted to the Web. Subscribing vendors receive notice within seconds and can respond immediately with a quotation. Quotes are reviewed and ranked in RFQS by dollar value. The quote's representations and certifications are qualified with the quotation response and a selection made. The contract specialist then makes the award electronically. Of course, regulations need to be changed to accommodate the process.

The initial pilot addresses procurements from \$25,000 to \$100,000 for commercial items. Once the concept has been proven, the pilot may be expanded to other

procurement types and possibly those under \$25,000. Detailed information is posted to NASA's Business Opportunities page. Vendors can access the system by simply "clicking" on the **"On-Line RFQ"** designation. The vendor responds with quotes for each line item along with any notes for a particular line item. RFQS displays terms and conditions, collects representations and certifications, and then posts the quotation. All of the responses are encrypted and may not be reviewed or changed after the **"Submit Quote"** option is selected. The vendor may, however, submit another quotation with instructions to disregard the previous one. There is no pre-registration or limitation on whom may quote, how many may quote, or how many times a vendor may submit a quotation for one solicitation.

The contract specialist can review the status of a solicitation at any time. After the cut-off date, the contract specialist will review the quotations from one main screen that includes the vendor name, total quotation amount, shipping information, and other pertinent data points for comparison purposes. The order of the information can be customized by the contract specialist. The entire quotation including representations and certifications can be reviewed by "clicking" on the vendor name. After an award decision is made, the contract specialist can printout all required documentation including Standard Form (SF) 1449 and the bid abstract. The electronic process ceases at this point and reverts to a manual process due to the signature requirements. (Electronic signatures and total bi-directional exchange will be addressed in a later phase).

2. Just-In-Time Initiative - Goddard Space Flight Center

Goddard's Logistics Management Division maintains an office products direct vendor delivery program with Office Depot as trading partner. The program supports approximately 3000 line items of office supplies. The three-year contract began during 1996. Some growth highlights:

Year	Number of Requisitions	Value (M)
1996	12227	.99
1997	31757	1.7
1998	36736	1.8

Office Depot provides ordering catalogs, performs inventory management, warehousing, and delivery to Goddard and NASA Headquarters. The reduction in stock requirements at Goddard has freed commercially leased warehouse space, valued at \$262K per year. Eight staff-years were eliminated from the Center's logistics contract, saving \$440K per year. Future plans include a Web-based ordering system offering access to all NASA Centers, facilitating NASA's "lead Center" philosophy. The contract will also support the Asset Management module under IFMP.

3. Scientific and Engineering Workstation Procurement (SEWP)

The NASA Scientific and Engineering Workstation Procurement vehicle is a set of 14 Indefinite Delivery/Indefinite Quantity (IDIQ) Information Technology (IT) contracts. SEWP's main goal is to provide NASA with an easy-to-use contract vehicle to purchase the latest high-end IT equipment at the lowest possible price. A secondary goal is to extend the benefits of up-to-date technology at low prices to other Government agencies through the implementation of SEWP as a Government-Wide Acquisition Contract (GWAC). SEWP has proven to be highly successful in saving the Government both time, paperwork and money. Time and paperwork is saved due to the pre-competed nature of SEWP. Money is saved by the low-prices offered by the vendors during the initial competition and by the continuing competition between the SEWP contracts and other Government contracts.

SEWP has been at the forefront of EDI implementation. SEWP was one of the first Government contracts to utilize the Internet for EDI over 5 years ago. While the full utilization of EDI has yet to be realized, NASA and the SEWP program have benefited greatly through the speed, convenience and reliability (it is much easier to lose a piece of paper than an EDI transaction) of both the Internet and EDI. Several NASA centers, including Goddard Space Flight Center, Ames Research Center, Langley Research Center, Lewis Research Center and Kennedy Space Center have implemented EDI processing for their SEWP orders. This has helped to improve the time for processing orders from days to hours. One of the challenges as noted below is to improve the use of EDI for non-NASA agencies.

In 1997, SEWP processed 1800 EDI orders worth over \$58,000,000. This represented about one-sixth of the total orders processed by SEWP. In 1998, the total EDI usage nearly doubled with about 3200 orders worth over \$115,000,000. This represents about 26% of the total order amount.

While the first two years of SEWP II have seen a large increase in EDI ordering, that trend is not likely to continue without changes and improvements both small and large. If no further EDI development and implementation occurred, the trend would likely flatten out at the current 26% of total orders. Since the processing of paper orders is time consuming and resource intensive while EDI, once properly implemented is both quick and easy to manage, SEWP's goal continues to be improving the usage of EDI. There are several areas SEWP is concentrating on. The first is a commercially developed Website, www.efed.com, developed by Electric Press. The basic idea of a Web site with baskets and ordering options is not new, e.g. Amazon.com. The unique challenges of integrating this concept with the volatile and complex world of IT purchasing along with the rules, regulations, and procedures that exist within the Government have made the implementation an on-going learning and development experience. As the initial Web implementation settles in, the next challenge SEWP is facing is to integrate

the quoting and ordering portions of the efed.com Website with the individual agencies' financial and procurement systems, e.g. IFMP (Integrated Financial Management Project) at NASA. The challenge is to provide the end-user with an easy-to-use mechanism to solicit quotes and build a basket of items that can be electronically turned into a Purchase Request (PR) within their agency's procurement/financial system and then allow the Contract / Procurement Officer to use the same Web interface to electronically pull-up the PR and with a few entries change the PR into a Purchase Order (PO) which is sent to SEWP and the vendors as an EDI transaction. While providing this mechanism to every Government agency is unlikely, by providing key agency customers with this capability, SEWP will be able to further improve the time, money and resources needed to perform IT purchasing.

C. Participation In Interagency Groups

A successful Federal EC program requires agency and department cooperation, sharing resources to build "single face" solutions. This has become imperative as more of our EC processes and supporting solutions continue to evolve in "Internet time". NASA participated in the following Interagency EC Groups during FY 98 and will continue to work through these groups to foster cross-government EC solutions.

Interagency Acquisition Internet Council (IAIC)

The IAIC, as one of the first groups to encourage EC beyond the bounds of FACNET, continues to develop leading edge recommendations on how Internet solutions can be applied to the Federal business process. The IAIC provides a necessary forum to identify specific actions or recommendations that promote coordination and foster consistency among Federal agencies. The EPS pilot began through the sponsorship and participation of IAIC members. NASA continues to chair the IAIC.

Federal EC Coordinators Group

The EC Coordinators Group works under the auspices of the Federal EC Program Office. Members of this group are responsible for keeping their agencies informed on government-wide EC initiatives and how they may participate. The group also serves as a forum to explain agency specific projects and how they might be shared among interested agencies

Interagency Electronic Grants Committee (IAEGC)

The National Partnership for Reinventing Government's February 1997 report,

Access America, identified Federal grants distribution as an area ripe for automation and the application of electronic commerce solutions. As a result, the Interagency Electronic Grants Committee (IAEGC) was formed under the sponsorship of the Federal Electronic Commerce Program Office to coordinate, promote and facilitate the effective use of electronic commerce throughout the federal grants community. NASA is an active member of the IAEGC, as well as its Research and Related Subcommittee (also known as the Federal Grant Electronic Commerce Committee). With the goal of implementing EC throughout the entire grant life cycle, the Research and Related Subcommittee advocates use of standard approaches and common processes among federal agencies.

NASA is participating in two collaborative projects designed to streamline the federal grant process.

Federal Commons is an Internet-based point of entry for grant proposers and recipients to conduct business electronically with Federal grant making agencies. It will support grant application, award functions, and invention reporting across agency boundaries. The benefits for recipients include reduced resources to prepare and submit applications, elimination of the mail and photocopy costs associated with paper processing, and improved management over the grant activity. Agencies will benefit from improved technology sharing, and reduced cycle time and resources needed to provide status, and make payments to grantees.

U.S. Electronic Grants System (USEGS) was funded by the Government Information Technology Services Board to streamline the federal grant process, improve efficiency and cut costs for federal agencies and grant customers. The USEGS permits grant customers to exchange data and files with federal agency databases through their Internet browser. The benefits for agencies participating in the pilot include elimination of duplicative development efforts, elimination of duplicate data entry - customers key in their data directly, no need to re-key data from paper forms.

Federal Public Key Infrastructure Steering Committee (PKISC)

The Federal Public Key Infrastructure Steering Committee has played a very active role in assisting Federal agencies that may wish to implement a Public Key Infrastructure. Recent activities include planning for a Federal Bridge Certification Authority (FBCA) to assist in PKI interoperability among Federal agencies and discussions with the Government of Canada on joint PKI projects that could benefit implementation of PKI in both the U.S. and Canada. NASA believes that our active participation in the Federal PKISC is critical to our ability to interoperate in the electronic commerce area with other agencies, as well as with industry, academia, and foreign governments. The Federal PKISC provides an important forum and working group that allows NASA to gauge our PKI direction against that of other organizations to ensure we are on track for interoperability. Also, our

practical experience with fielding PKI permits NASA to pass on lessons-learned that may be beneficial to other organizations.

Financial Implementation Team for Electronic Commerce (FITEC)

FITEC serves as a principal coordinating body for the federal financial community and other functional areas, such as procurement, involved with electronic commerce. FITEC-sponsored Best Practices Conferences have been especially valuable to NASA and participating agencies as we identify opportunities and jointly sponsor projects to effectively use the limited resources available. Various NASA projects, including NAIS and the SEWP contracts, have provided briefings. These conferences serve as a clearinghouse for all attending agencies, even if they elect a "wait and see" approach.

Chief Financial Officers Council, Subcommittee on Grants Management, Cash Drawdown Group

This sub-group of the Federal CFO Council was established in response to the member agencies' concerns regarding the proliferation of grant cash/drawdown payment systems. The goal of the group was to develop a recommendation for consideration by the full Council. The group developed a recommendation that was approved by full CFO Council in June 1998. The recommendation provided that by October 1, 2002, Federal departments and agencies will be using one of three designated cash drawdown systems (Department of Treasury's ASAP System, Department of Human Services' PMS System, and one to be determined by the Department of Defense). The payment of choice for all systems will be by Electronic Funds Transfer.

EFT99 Interagency Policy Workgroup

Established to assist Treasury in addressing issues related to the mandatory EFT conversion, to work together with other agencies and the Department of the Treasury to resolve EFT issues, and to give agencies the opportunity to provide input into Treasury's policy formulation and regulations on EFT.

To further discuss pressing issues in greater detail common to a group of agencies, five subgroups were formed from the main workgroup. They were directed to identify top issues of concern, determine how they could be addressed or resolved, name constraints or obstacles to resolving issues, and, where possible, make recommendations in formulating Treasury's final rule on mandatory EFT.

Prompt Pay Interagency Workgroup

Established to revise the current OMB Circular (A-125) to reflect the changing commercial environment while streamlining the Federal Payment function through the increased use of electronic commerce.

D. Vendor Data Collection

Within NASA's procurement offices today, detailed vendor data is collected in support of the Federal Procurement Data System (FPDS) for actions over \$25,000 on NASA Form 507, Individual Procurement Action Report. Individual action data is collected at the Center level through the Agency's Acquisition Management System (AMS). With this existing system, data is then converted to fit the FPDS data requirements.

Under the Integrated Financial Management System, NASA is developing a single database for all NASA's vendors. The database will contain addresses, bank account numbers, Taxpayer Identification Numbers, CAGE codes, etc., and will be used by both the Procurement and the Core Accounting modules of the Integrated Financial Management System. This will ensure that both processing modules will utilize the same data and the vendor information need only to be established once as long as the information is the same.

As the IFM systems are installed, several NASA forms will be eliminated since direct interfaces with the FPDS and the Federal Assistance Award Data System (FAADS) have been designed into the software. Data elements in the software will now match elements in the FPDS.

Detailed contractor financial management reporting is required of all contractors with cost-type contracts that have a contract value in excess of \$500,000 and a performance period in excess of one year. In some cases, the dollar value, time, and type of contract may vary. Pre-selected data are submitted either electronically or by NASA Form 533, Contractor Financial Management Report. Centers receiving the report evaluate the contractor's costs and hours to ensure that dollar and labor resources realistically support the schedule. The report is the basis for planning, monitoring, and controlling the resources applied to the contract. Also, the reports serve as the basis for the Agency's accrued revenue and expenditure accounting system. While the SF 533 Report is an element of the NASA financial management process, the results of each analysis has a direct impact on contractor payments provided through the Treasury system.

Grantee financial data is collected from all NASA contractors, collegiate, and other organizations receiving grants. The report is currently submitted via mail or fax, but development of an automated Internet-based system has been approved. Data is collected on Form SF 272, Federal Cash Transactions Report, and includes quarterly advances, disbursements, receipts, adjustments, cash on hand

derivations, and interest income. Four-month spending projections are required. These data are used to track grantee financial performance and to update the revenue and expenditure accounting system. Monthly and quarterly analysis of the forms affects all payments to the Grantees.

During FY 98, all NASA Centers were involved in collecting vendor/contractor Taxpayer Identification Numbers, bank account numbers, and other data necessary to assure payment by Electronic Funds Transfer (EFT). Data was collected using Standard Government Forms, Agency form letters, and when necessary for clarifications, telephonically. The data collected were used to complete/update Center and Agency cash management systems and to assure proper availability of all data required for electronic payment by the US Treasury.

In FY 98, Stennis Space Center (SSC) aggressively implemented the requirements of the Debt Collection Act, which required all vendors to provide ACH information for the processing of invoices. All existing and new vendors were notified in writing, that SSC was requiring the ACH information as a prerequisite to receiving and processing invoices. Exceptions have been made for recipients who meet the specifications in 31 CFR Section 208. The implementation of this procedure has permitted SSC to issue 99.9% of payments by EFT for the last quarter of FY 98. In addition, it improved the cash flow and payment efficiency of the vendors, and eliminated the risk associated with lost or stolen checks.

FY 99/00 Implementation Plan

NASA's FY 99/00 Implementation includes:

A. Integrated Financial Management Project

B. EC Initiatives

- Public Key Infrastructure Implementation
- NASA Acquisition Internet Service

C. Management Structures and Processes

- Management Structure
- Uniform Implementation

D. Summary

EC Implementation Plan

During FY 99-00, NASA will implement EC in two areas, the Integrated Financial Management Project and other functionally specific EC initiatives, such as the NASA Acquisition Internet Service. Our goal will be to integrate all efforts to the maximum extent, when and where it makes sense to do so.

A. Integrated Financial Management Project

The Integrated Financial Management Project (IFMP) was contracted for in response to a Federal mandate for all Government agencies to redesign their financial business processes and integrate agency systems. This end-to-end automated system will meet the agency's mission-specific needs while also complying with the Federal government's EC Strategic Plan. Key elements of IFMP:

- Utilizes commercial-off-the shelf (COTS) software to the maximum extent possible.
- Meets NASA and JFMIP (Joint Financial Management Improvement Program) policy guidelines.
- Provides fully integrated suite of applications.
- Supports an enterprise-wide architecture that can utilize NASA communications infrastructure.
- Supports a broad range of internal and external customers that must use NASA's financial data.
- Supports NASA's EC initiatives including existing Internet/EDI services.

Instead of maintaining 10 different Center approaches, there will be one Agencywide approach. This database standardization will eliminate duplication, improve accuracy, minimize reconciliation of data as well as provide data consistency and integrity. Several examples of this standardization revolve around the vendor database and the reporting and collection of data. Currently, each NASA Center has its own unique and separate finance system as well as separate vendor identification and tracking numbers in the finance and procurement system. The agency goal is to have one single vendor database using a Commercial and Government Entity (CAGE) code which is assigned and maintained by the Defense Logistics Services Center (DLSC). Many other government agencies (DoD, FAA, GSA, Department of Energy, Department of

Education, HUD, VA, and SBA) as well as the NASA Supply Management System (NSMS) are using these CAGE codes.

One of the most scrutinized IFM procedures will be data collection and reporting of financial and procurement data. Forms are being eliminated and direct interfaces with the FPDS (Federal Procurement Data System) and FAADS (Federal Assistance Award Data System) have been designed and included in the IFM software. Data elements that were collected through procurement utilizing the NASA Form 507, Individual Procurement Action Report, will now be transferred electronically directly to the FPDC.

The IFM System will be ongoing in both FY 99 and FY 00. This COTS-based system supports all building block elements, but particularly the Standard Federal Systems Interfaces (blocks 2 and 3). The Phase I IFM implementation will consist of six modules and an executive information system (EIS) installed across the Agency. Phase I modules include:

- core financial
- budget formulation
- travel
- time and attendance
- procurement
- executive information system (EIS)

Phase II modules, scheduled to begin deployment in FY 02, will consist of:

- asset management
- human resources management
- grants management

NASA will have automated most of the business processes after completing Phase I tasks. Requirements of the following governing regulations and policies will be met by the Phase I rollout:

- The Chief Financial Officers Act
- The Government Performance and Results Act
- The Joint Financial Management Improvement Program
- Office and Management Budget Circular A-127
- Federal Accounting Standards Advisory Board Issued Standards

Currently, NASA has budgeted \$76.2 million for both FY 99 and FY 00. Form 300B has been submitted to the Office of Management and Budget as a part of the revised BY 2000 budget submission. IFMP is currently undergoing initial testing with center operational phase-in scheduled to commence with the Dryden Research Center and the Marshall Space Flight Center in June 1999 with final phase-in ending around September 2000.

IFMP Major Milestones

Initial Agency-Level System Validation	Dec 1998
First Delivery to Centers	Jun 1999
Last Delivery	Jun 2000
Operational Agency-wide	Sep 2000

B. EC Initiatives

1. Implementation of the NASA Public Key Infrastructure

During FY 99 and FY 00 NASA plans to implement a Public Key Infrastructure (PKI) that will provide authentication, access control, privacy, integrity, and non-repudiation. NASA has purchased digital certificates for all NASA civil servants, allowing for maximum participation of its workforce in using the PKI, consistent with good business practices. Applications that are known today to require PKI include the Integrated Financial Management System (IFMS), secure messaging (emails and attachments), High Speed Research Program, electronic grants processing, and encryption of locally stored workstation data. We expect many other applications to use PKI capabilities as the infrastructure is put into place and the user community is made aware of the power and usefulness of PKI tools.

a. Support for government-wide policy principles

The following policy principles are relevant to the NASA PKI implementation:

“Agencies should use EC to reduce effort, time, and expense required for the government to buy from sellers and for sellers to sell to the government.”

The NASA PKI, via its authentication (digital signature) and non-repudiation capabilities, will streamline/eliminate transactions steps and reduce the paperwork burden associated with paper signature processes. Initially, these improvements will be implemented in the electronic grants program (between NASA and its grantees) and internal to NASA in the IFMS program. Once interoperability within the Federal government and between government and industry is achieved, the PKI capabilities will be extended to other organizations outside of NASA, with concomitant benefits. The NASA PKI has been designed to be scalable, so as the PKI is implemented within NASA, we expect other applications to embrace PKI and to benefit from its capabilities as well.

“Agencies should use EC to improve key aspects of the buying and paying process that contribute to the government’s ability to make good deals on behalf of taxpayers.”

Implementation of the NASA PKI will support this policy principle in that it will permit easy and efficient information exchange during contract negotiations. PKI allows for encryption of sensitive information (such as negotiating positions and proprietary cost/technical information), authentication of the negotiators and integrity of the negotiating information via digital signature, and non-repudiation of the negotiation transactions. Support for this capability would require either interoperability between the NASA PKI and the seller PKI, or the issuance by NASA of NASA digital certificates to the seller. More analysis is needed to determine whether a business case exists for supporting this application, and, if so, the best technical and management approach.

“Whenever possible and cost effective, agencies should rely on commercial products, services and practices.”

The NASA PKI is totally compliant with this policy principle since the products that comprise the PKI are commercially available from a leading supplier and are in conformance with the National Institute of Standards and Technology criteria for PKI, including its Cryptographic Module Validation Program.

b. Support for EC Strategic Plan building blocks

The NASA PKI initiative strongly supports the “Buyer & Seller ID/Authentication” building block. The NASA PKI will provide authentication, privacy/confidentiality, integrity, access control, and non-repudiation capabilities which, as called out in the Electronic Commerce Strategic Plan, are key ingredients for secure Electronic Commerce. NASA is also an active member of the Federal PKI Steering Committee and plans on participating in that organization’s Federal Bridge Certification Authority (FBCA) project, which is intended to promote interoperability among Federal Agency PKI systems. The NASA PKI vendor is also one of the vendors that will participate in the FBCA project, positioning NASA to be an active participant in Electronic Commerce.

c. PKI Milestones

Our working plans for implementing PKI call for starting deployment in March 1999 and completing by the end of the calendar year. This highly aggressive schedule is under review by all ten NASA Centers, as well as Headquarters, to ensure that all necessary activities can be completed in the planned timeframe, and that the order of Center implementation aligns properly with Agency priorities. The deployment rate is expected to be approximately two Centers per month. The first applications of PKI are expected to be secure messaging and local disk encryption, as well as IFMP at the Centers installing IFMP in the PKI deployment

timeframe. Metrics that measure the success of our PKI deployment are under development.

2. NASA Acquisition Internet Service (NAIS)

Funding for NAIS EC development is provided by the Headquarters mission support budget, under the budget line for research operations support. Current funding, provided to the Marshall Space Flight Center, totals \$346K. Projects are defined and prioritized by the NAIS team, subject to funding authority and final approval from the Associate Administrator for Procurement. During FY 99, the NAIS team is pursuing the following initiatives:

a. Database Integration

EPS database integration will enable enhanced search, email notification, and bi-directional exchange of vendor offers. This effort is designed to enhance current NAIS functionality, technical efficiency, and enable more robust development efforts.

b. Bi-directional exchange pilots

The forms-based pilot approaches the electronic transmission of vendor responses to solicitations via proprietary COTS forms and authentication/data protection applications. The planned Phase II effort, which will address midrange and large acquisitions, is scheduled to begin immediately and be completed by 1/30/99. The web-quotes, or RFQS pilot, approaches the electronic transmission of vendor responses to solicitations via web-based forms. The pilot, which will address simplified acquisitions, is scheduled to begin immediately and be completed by 1/15/99. Based on the success of the two pilots, expansion to Agencywide deployment will be considered and scheduled. Details of each pilot are contained in the NAIS Business Case, Nov 98 team workshop minutes and reports, NAIS action items, and MSFC tech staff schedule, all online linked from the NAIS team site.

c. Consolidated Contracting Initiative (CCI) – Phase II

This effort will address several requirements for enhancing the current online CCI tool deployed in September 98 and discussed under the FY 98 Assessment.

d. Y2K Compliance

The NAIS is migrating to new server hardware and will achieve full Y2K compliance during FY 99. The NAIS team has acquired a production server and the technical staff has been working to configure the test/production environment. All aspects of the NAIS infrastructure (hardware and software) are completing numerous activities to meet the Agency's goals and requirements for full Y2K compliance. This involves replacing hardware, upgrading all commercial-off-the-shelf (COTS) software, and validating in-house software (e.g., EPS). The migration and Y2K compliance is scheduled for completion by mid-FY 99.

3. NAIS FY 00 Schedule

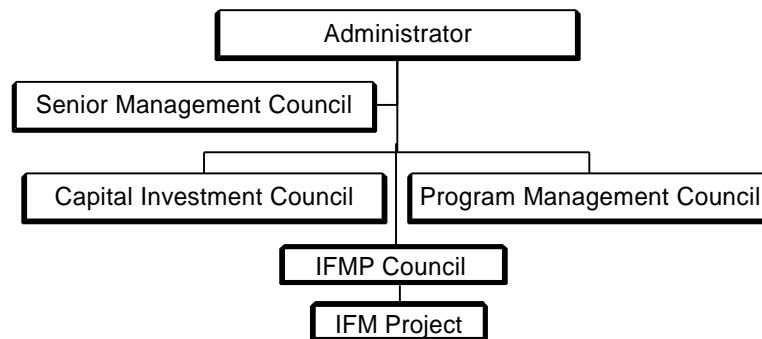
The NAIS schedule for FY 00 is tentative subject to final funding authorization from the NASA Headquarters Budget Office. The primary activities planned are:

- Continuation of Bi-directional exchange initiatives
- Completion of Consolidated Contracting Initiative (CCI)
- Virtual Procurement Office and Survey Systems
- IFMP Gap Systems (as necessary)

C. Management Structures and Processes

(Note: This discussion applies to IFMP as an Agency-wide capital investment.)

1. Management Structure



Agency integration is ensured through a number of management councils that support the Administrator and coordinate activities and planning. The four councils affecting IFMP are the Senior Management Council (SMC), the Capital Investment Council (CIC), the Program Management Council (PMC), and the IFMP Council.

The SMC, chaired by the Administrator, develops and approves the Strategic Plan and evaluates performance against the annual GPRA Performance Plan. The

SMC reviews major initiatives, including IFMP; the most recent semi-annual review was completed in October 1998.

The CIC, responsible for significant capital investments, balances resources and recommends investment options to the Administrator. The CIC conducts annual assessments to ensure investment supports the Agency Strategic Plan (available at <http://www.hq.nasa.gov/office/nsp/>) The CIC recommended the IFMP budget during July 1998.

The PMC reviews performance of existing projects, such as IFMP. The review process evaluates cost, schedule, and technical content to ensure projects meet programmatic commitments. IFMP reviews are included in quarterly reviews as well as an Independent Annual Review.

The IFMP Council provides guidance to the Chief Financial Officer. The Council endorses the project and serves as an advocate for the changes required by the implementation of new business processes and systems.

2. Uniform Implementation

As part of the introduction of the IFMP, an Agency-wide moratorium was put in place on development of interim capabilities prior to the IFMP implementation. The moratorium ensures that Centers remain focused on implementing an Agency system rather than developing and maintaining more costly individual systems across the NASA Centers.

The Office of the CIO ensures that the Agency retains a comprehensive “corporate” view of its EC activities and facilitates the coordination, integration, and advocacy of these EC activities. Specifically, they;

- Ensure that the Agency’s diverse end user EC requirements are addressed sufficiently and Agency EC requirements are documented;
- Coordinate Agency EC policy;
- Coordinate Agency-wide EC standards, as necessary;
- Coordinate NASA’s representation on external EC working groups.

Mr. Tom Luedtke, Acting Associate Administrator for Procurement, serves as the Agency’s lead for coordinating EC initiatives with the Offices of the CIO and CFO. Mr. Luedtke has served in this lead capacity since early 1994.

Summary

Our Assessment and Implementation Plan provide a broad spectrum of results and goals under our diverse EC and reengineering activities. Our extensive experience, working independently and with many interagency groups, is paying off. We are firmly committed to the EC Strategic Plan's "building block" approach. The incremental path we are following, through Agency and multi-agency pilots, combined with Agency-wide initiatives, such as the Integrated Financial Management Project, is sound and we are achieving measurable advantages with our EC tools and processes.

We will continue to work with the Office of Federal Procurement Policy and interested agencies to expand EC services and encourage legislative initiatives to enable broader acceptance of EC programs by agencies and our trading partners.